



# FEE TRANSMITTAL FOR FY 2004

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT

(\$)**198.00**

## Complete if Known

Application Number	10/090,316
Filing Date	March 1, 2002
First Named Inventor	Peter G. Borden
Group Art Unit	2877
Examiner Name	Rosenberger, Richard A.
Attorney Docket No	BOX006 US

## METHOD OF PAYMENT

1. ☒ The Commissioner is hereby authorized to charge any underpayment and credit any overpayments to:

Deposit Account Number **50-2263**

Deposit Account Name **Silicon Valley Patent Group LLP**

- ☐ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17  
☐ Applicant claims small entity status. See 37 CFR 1.27

2. ☒ Payment Enclosed:

☒ Check ☐ Credit Card ☐ Money Order ☐ Other

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) (\$)**0.00**

### 2. EXTRA CLAIM FEES

Total Claims	Extra Claims	Fee from below	Fee Paid
34	33	1 x 18	= \$18
Independent Claims	3	0 x 86	= \$
Multiple Dependent	0	140	= \$0

Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claims, if not paid
1204	86	2204	43	**Reissue independent claims over original patent
1205	18	2205	9	**Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)**18.00**

\*\* or number previously paid, if greater; For reissues, see above.

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee for provisional applications	
1806	180	1806	180	Submission of Information Disclosure Statement	180
8021	40	8021	40	Recording each patent assignment per properties (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	770	2801	375	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

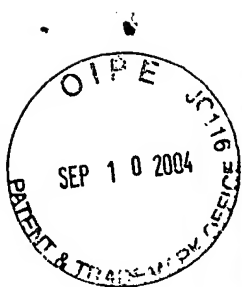
\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)**180.00**

## SUBMITTED BY

Complete (if applicable)

Name (Print/Type)	Omkar K. Suryadevara	Registration No. (Attorney/Agent)	36,320	Telephone	(408) 982-8200 ext. 3
Signature				Date	September 10, 2004



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Peter G. Borden; Jiping Li  
Assignee: Applied Materials, Inc.  
Title: Apparatus and Method For Measuring A Property Of A Layer In A Multilayered Structure  
Serial No.: 10/090,316 Filing Date: March 1, 2002  
Examiner: Rosenberger, Richard A. Group Art Unit: 2877  
Docket No.: BOX006 US Confirmation No: 5495

Santa Clara, California  
September 10, 2004

MAIL STOP AMENDMENT  
COMMISSIONER FOR PATENTS  
P.O. BOX 1450  
ALEXANDRIA VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT  
UNDER 37 CFR §1.97(c)**

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, §1.97 and §1.98, the Applicants submit for consideration in the above-identified patent application the documents listed on the accompanying Form PTO-1449. Copies of documents numbered 96-128 are also submitted herewith. The remaining document number 95 is not attached hereto, because the document is an issued patent which is readily available in the U.S. Patent and Trademark Office. The Examiner is requested to make all of the listed documents of record.

This Information Disclosure Statement is submitted pursuant to 37 CFR §1.97(c) as it is after receipt of a first Office Action on the merits but before mailing of a final Action or Notice of Allowance. Accordingly, a fee is required pursuant to 37 CFR §1.17(p). A Fee Transmittal form (PTO/SB/17) is attached to this submission.

Applicants would appreciate the Examiner initialing and returning the Form PTO-1449, indicating that the information has been considered and made of record herein.

The information contained in this Information Disclosure Statement is to the best of my knowledge and is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not

exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

**Via Express Mail Label No.  
EV 448 866 740 US**

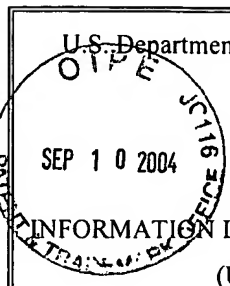
Respectfully submitted,

A handwritten signature in black ink, appearing to read "S. Omkar", with a horizontal line extending from the end of the signature.

Omkar K. Suryadevara  
Attorney for Applicants  
Reg. No. 36,320

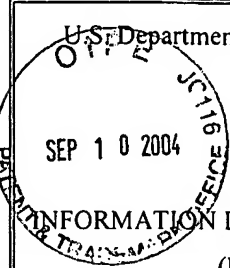
SILICON VALLEY  
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	Application No.:	10/090,316
	Filing Date:	March 1, 2002
	First Named Inventor:	Peter G. Borden
	Group Art Unit:	2877
	Examiner Name:	Rosenberger, Richard A.
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	Attorney Docket No.:	BOX006 US

U.S. Patent Documents								
*Examiner Initials		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate	
	95.	4,679,946	7/14/87	Rosencwaig et al.	374	5		
Foreign Patent Documents								
							Translation	
		Document	Date	Country	Class	Subclass	Yes	No
Other Art (Including Author, Title, Date, Pertinent Pages, Etc.)								
	96.	J. Opsal, "High Resolution Thermal Wave Measurements and Imaging of Defects and Damage in Electronic Materials" Photoacoustic and Photothermal Phenomena II, Springer Series in Optical Sciences, Vol. 62, Springer Verlag Berlin, Heidelberg, 1990.						
	97.	A. Rosencwaig, "Thermal Wave Measurement of Thin-Film Thickness", 1986 American Chemical Society, pp.182-191						
	98.	A. Rosencwaig et al., "Thin-Film Thickness Measurements with Thermal Waves", Journal De Physique, October 1983, pp. C6-483 - C6-489						
	99.	W. L. Smith et al. "Thermal-wave Measurements and Monitoring of TaSi <sub>x</sub> Silicide Film Properties" J. Vac. Technol.B2(4), Oct.-Dec. 1984, pp. 710-713						
	100.	A. Salnick et al., "Nonlinear Fundamental Photothermal Response in 3D Geometry: Experimental Results for Tungsten", (believed to be prior to March 1, 2002)						
	101.	S. Ameri et al., "Photo-Displacement Imaging", March 30, 1981, pp. 337-338						
	102.	L. Chen et al., "Thermal Wave Studies of Thin Metal Films Using the Meta-Probe-A New Generation Photothermal System" 25th Review of Progress in QNDE, Snowbird, UT 19-24 July, 1998, pp 1-12						
	103.	P. Alpern and S. Wurm, "Modulated Optical Reflectance Measurements on Bulk Metals and Thin Metallic Layers", J. Appl. Phys. 66(4), 15 August 1989, pp 1676-1679						
	104.	J. Opsal, "The Application of Thermal Wave Technology to Thickness and Grain Size Monitoring of Aluminum Films", SPIE Vol. 1596 Metalization Performance and Reliability Issues for VLSI and ULSI (1991), pp 120-131						
	105.	A. Rosencwaig, "Process Control In IC Manufacturing With Thermal Waves", Review of Progress in Quantitative Nondestructive Evaluation, Vol.9, 1990, pp 2031-2037						
	106.	K. Farnaam, "Measurement of Aluminum Alloy Grain Size on Product Wafers and its Correlation to Device Reliability", 1990 WLR Final Report, pp 97-106						
	107.	B.C. Forget et al., "High Resolution AC Temperature Field Imaging", Electronic Letters 25th September 1997, Vol. 33 No. 20, pp 1688-1689						

Examiner:	Date Considered:
* Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication with applicant.	

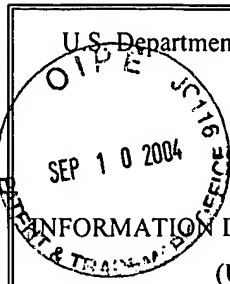
 <p>U.S. Department of Commerce, Patent and Trademark Office</p> <p>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</p> <p>(Use several sheets if necessary)</p>	Application No.:	10/090,316
	Filing Date:	March 1, 2002
	First Named Inventor:	Peter G. Borden
	Group Art Unit:	2877
	Examiner Name:	Rosenberger, Richard A.
	Confirmation No.:	5495
	Attorney Docket No.:	BOX006 US

108.	C. Paddock et al., "Transient Thermoreflectance from Metal Films", May 1986 Vol. 11, No. 5 Optical Letters, pp 273-275
109.	C. Paddock et al., "Transient Thermoreflectance from Metal Films", J. Appl. Phys. 60(1), 1 July 1986, pp 285-290
110.	Per-Eric Nordail et al. "Photothermal Radiometry", Physica Scripta, Vol. 20, 659-662, 1979
111.	A. Rosenwaig, "Thermal Wave Monitoring and Imaging of Electronic Materials and Devices", pp 73-109
112.	A. Rosenwaig, "Applications of Thermal-Wave Physics to Microelectronics", VLSI Electronics, Microstructure Science Vol. 9, 1995, pp 227-288
113.	W. Lee Smith et al., "Voids, Notches and Microcracks in Al Metallization Detected by Nondestructive Thermal Wave Imaging", June 23, 1989, pp. 211-221
114.	W. Lee Smith et al., "Imaging of Subsurface Defects in ULSI Metalization (Al Voids SI Precipitates, Silicide Instability) and SI Substrates (D Defects)", Technical Proceedings Simicon/Japan 1992, Nippon Convention Center, Japan pp 238-246
115.	W. Lee Smith, "Nondestructive Thermal Wave Imaging of Voids & Microcracks in Aluminum Metallization", 1989 WLR Final Report, pp 55-68
116.	W. Lee Smith, "Direct Measurement of Stress-Induced Void Growth by Thermal Wave Modulated Optical Reflectance Imaging", 1991 IEEE/IRPS, pp 200-208
117.	W. Lee Smith, "Evaluating Voids and Microcracks in Al Metalization", Semiconductor International, January 1990, pp 232 -237
118.	C. G. Welles et al., "High-Resolution Thermal Wave Imaging of Surface and Subsurface Defects in IC Metal Lines", Materials Research Society, SF Marriott, April 27-May 1, 1992, pp 1187-1191
119.	L. Fabbri et al., "Analysis of Local Heat Transfer Properties of Tape-cast AlN Ceramics Using Photothermal Reflectance Microscopy", 1996 Chapman & Hall, pp 5429-5436
120.	J. A. Batista et al., "Biased MOS-FET and Polycrystalline Silicon Tracks Investigated by Photothermal Reflectance Microscopy", pp 468-469
121.	L. Chen et al., "Meta-Probe: A New Generation Photothermal System For Thin Metal Films Characterization" (believed to be prior to March 1, 2002)
122.	L. Chen et al., "Thermal Wave Studies of Thin Metal Films and Structures", (believed to be prior to March 1, 2002)
123.	9th International Conference on Photoacoustic and Photothermal Phenomena Conference Digest, June 27-30, 1996 Nanjing, P.R. China, pp 81
124.	R. S. Sharpe, "Research Techniques in Nondestructive Testing Vol. VII, Academic Press 1984, pp 158-365
125.	R. L. Thomas et al., "Thermal Wave Imaging For Nondestructive Evaluation" 1982 Ultrasonic Symposium, pp 586-590
126.	G. Slade Cargill III, "Electron-Acoustic Microscopy", Physics Today, October 1981, pp 27-32
127.	A. Rosencwaig, "Thermal Wave Microscopy", Solid State Technology, March 1982, pp 91-97

Examiner:

Date Considered:

\* Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication with applicant.

 <p>U.S. Department of Commerce, Patent and Trademark Office</p> <p>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</p> <p>(Use several sheets if necessary)</p>	Application No.:	10/090,316
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	128.	Eric A. Ash, "Acoustical Imaging" Volume 12, Plenum Press, July 19-22, 1982, pp 61-65

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